
SGT-LD-5-23

Quick Installation Guide

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About the Installation Guide

This Installation Guide is intended to guide a professional installer to install the SGT-LD-5-23. It includes procedures to assist you in avoiding unforeseen problems.

Conventions



Warning: This indicates a warning or caution that you have to abide by.



Note: This indicates an important note that you must pay attention to.

Chapter 1 Introduction

Introduction

The SGT-LD-5-23 is a high-performance outdoor-deployable radio bridge that provides radio connectivity amongst multiple network locations. The SGT-LD-5-23 has support for Base Station, CPE, PTP and PTMP connectivity modes. Moreover, the SGT-LD-5-23 has a built-in 23dBi flat-panel antenna that can be used for connections in excess of 40km. With high throughput and long-distance transmission, the SGT-LD-5-23 is an ideal backhaul solution for Carriers, Enterprises and Service Providers.



Chapter 2 Preparation before Installation

This chapter describes safety precautions and product information that you have to know and check before installing a SGT-LD-5-23.

Professional Installation Required

- 1 Please seek assistance from a professional installer who is well trained in RF and network installation and who is knowledgeable regarding local regulations.
- 2 The SGT-LD-5-23 is provided through distribution to system installers who employ services of trained professional technicians – the SGT-LD-5-23 is not sold directly through retail stores.

Safety Precautions

To ensure your safety and install the hardware properly, please read and follow these safety precautions.

- 1 If you are installing an antenna for the first time, for your safety as well as others, please seek the assistance of a professional installer who has received safety training on the hazards involved.
 - 2 Keep safety as well as performance in mind when selecting your installation site, especially where there are electric power and phone lines.
 - 3 When installing your antenna, please note the following:
 - Do not use a metal ladder;
 - Do not work on a wet or windy day;
 - Wear shoes with rubber soles and heels, rubber gloves, long sleeved shirt or jacket.
 - 4 When the system is operational, avoid standing directly in front of the antenna. Strong RF fields are present when the transmitter is on.
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Installation Precautions

To keep the SGT-LD-5-23 in good condition while you are installing it (and for subsequent high performance), please read and follow these installation precautions.

- 1 Users MUST use a suitable and well-installed surge arrestor and grounding kit with SGT-LD-5-23; otherwise, random lightning can cause fatal damage to the SGT-LD-5-23. **EMD (Lightning) DAMAGE IS NOT COVERED UNDER WARRANTY.**
- 2 Make sure that the PoE is correctly connected to the RJ-45 port on the SGT-LD-5-23 labelled PoE+Data. **DO NOT CONNECT TO THE PORT LABELLED “Warning!! No POE”**, otherwise the SGT-LD-5-23 will be severely damaged!

Product Package

The product package you have received should contain the following items. If any of them are not included or damaged, please contact the supplier for support.

SGT-LD-5-23 with integrated 23dBi antenna x1

Mounting Kit x1

PoE Injector & Power cord x1

Grounding Wire with Screw x1

Water Proof RJ-45 Connector Kit x1

Quick Installation Guide x1

Product CD x1

Note:

Product CD contains Quick Installation Guide and User Manual!

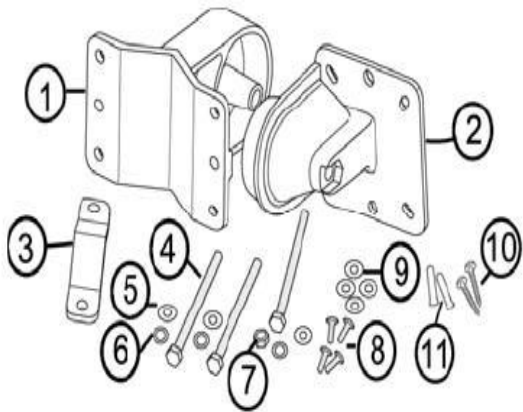
Mounting Kit

Wall/Pole Mounting Bracket

- 1. T-Form Bracket x1
- 2. Articulation Pole x1
- 3. Pole Mount Bar x1

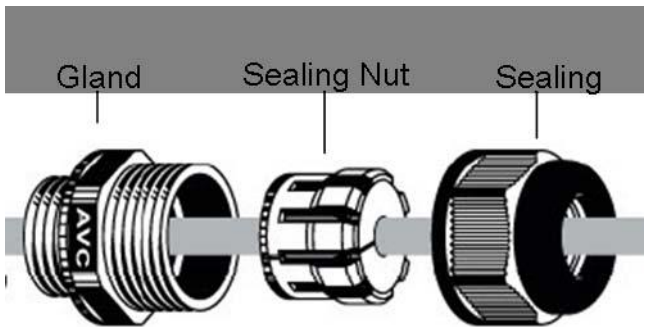
Fasteners

- 4. M8x80 Screw x2
- M8x90 Screw x1
- 5. M8 Washer x3
- 6. M8 Spring Washer x3
- 7. M8 Nut x1
- 8. M5x16 Screw x4
- 9. M5 Washer x4
- 10. Wood Screw x4 (for Wall Mount)
- 11. Wall/Gyprock Plug x4 (for Wall Mount)



Waterproof RJ-45 Connector Kit

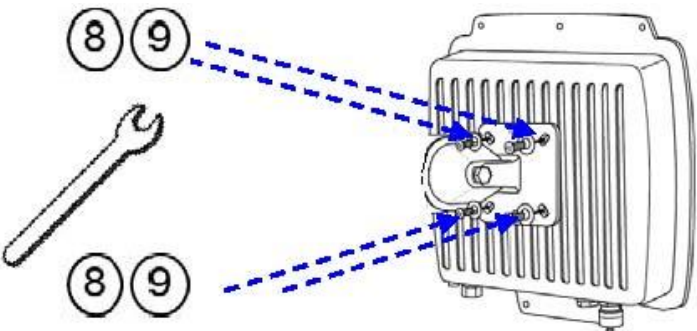
- 1. Gland x1
- 2. Sealing Nut x1
- 3. Sealing x1



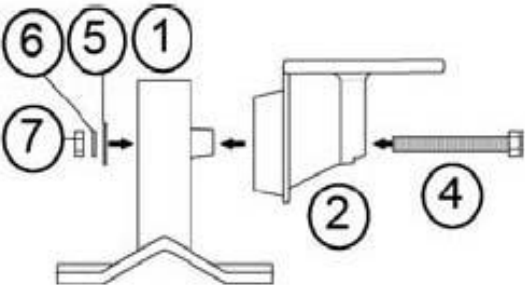
Chapter 3 System Installation

Assemble the Mounting Bracket

1 Place the main bracket into the seating and use a spanner to fasten the bracket to the SGT-LD-5-23 with M5×16 screws and M5 washers provided in the hardware packets;

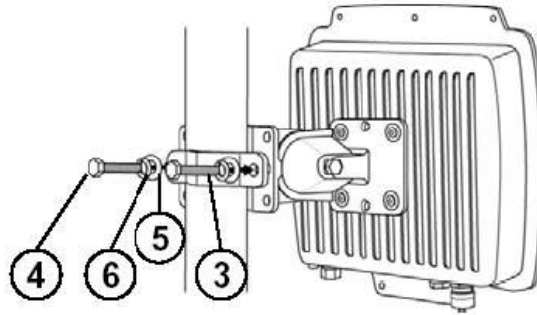


2 Assemble the main bracket by placing articulation pole to the T-form bracket via a M8×90 screw through the insertion axe and fix with the M8 washer, spring washer and M8 nut;

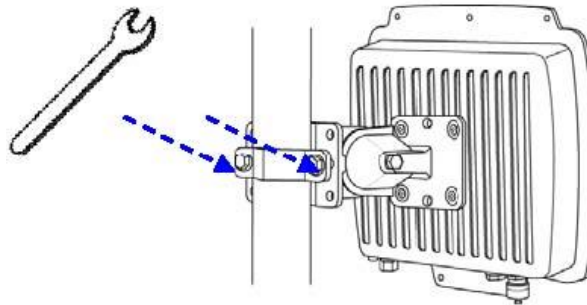


Pole Mounting

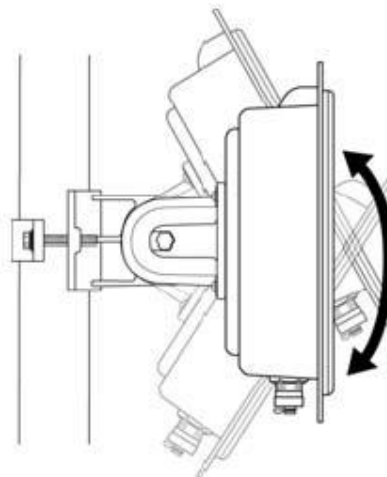
- 1 Install the main bracket and the pole mount bar over the top of the pole by securing the drill holes of the pole mount bar to the main bracket ones and insert two M8×80 screws, spring washers and washers through the drill holes and main bracket;



- 2 Fasten two M8×80 screws and washers through the drill holes and main bracket with a spanner;



- 3 Adjust the antenna for appropriate tilt / vertical orientation.



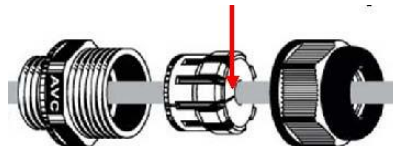
Connect Up

Before installing the Ethernet cable with a waterproof RJ-45 connector, it is recommended that the Cat-5 RJ-45 cable be used for the bridge to power injector connections.

To connect to the hole labelled **PoE+Data**, open the black cover in advance by using a coin or a slotted screwdriver and then screw in the body of the gland and tighten.

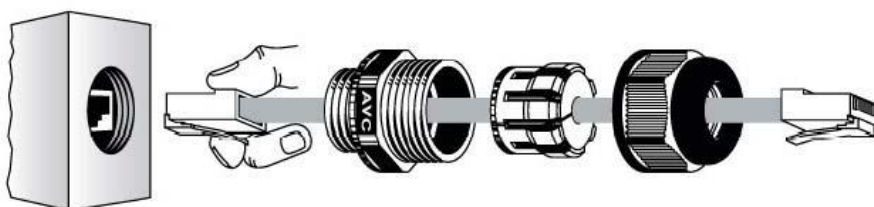


Slide the sealing nut to the RJ-45 cable from its middle breach and then insert the sealing into the cable.



Slide the Sealing Nut from its Breach

Insert the RJ-45 connector and make sure that the locking tab snaps home.



Screw the sealing onto the gland and tighten.



Ground the wire

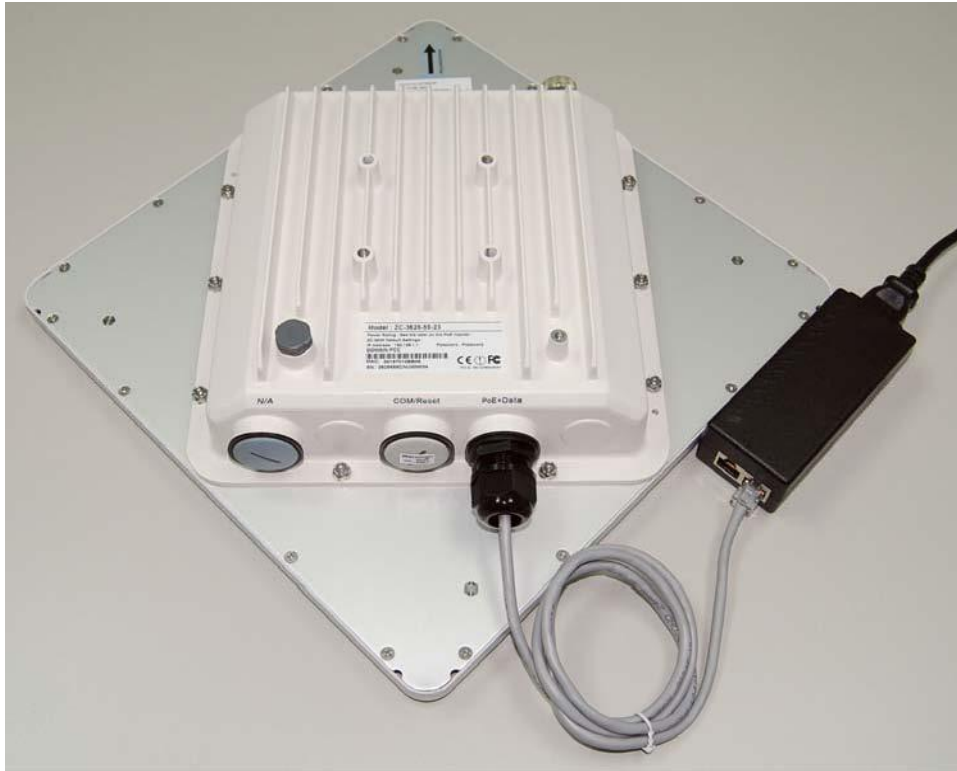
The SGT-LD-5-23 is shipped with a grounding wire. The unit must be properly grounded to protect against power surges. The grounding point can be found on the bottom of the unit. It is supplied with an appropriate grounding lug for attachment to the ODU (Outdoor Unit).



Power On

To power up the SGT-LD-5-23, follow the steps below:

- 1 Plug a user-supplied Cat-5 Ethernet cable from your wired LAN (or a computer) into the power injector RJ-45 jack (**DATA IN**);
 - 2 Plug a user-supplied Cat-5 Ethernet cable from the SGT-LD-5-23 into the power injector RJ-45 jack (**P+DATA OUT**);
 - 3 Connect the power module to the power injector and plug the AC cord into an AC power receptacle.
 - 4 After being powered on, the device will send out the beep sound lasting about 1.5 seconds, informing you that the SGT-LD-5-23 is powered up. Wait for about 60 seconds - the system will be initialized and start working.
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Warning:



Make sure that the PoE is correctly connected to the RJ-45 port on the SGT-LD-5-23 labelled PoE+Data. **DO NOT connect to the port labelled “Warning!! No POE”**, otherwise the SGT-LD-5-23 will be severely damaged!

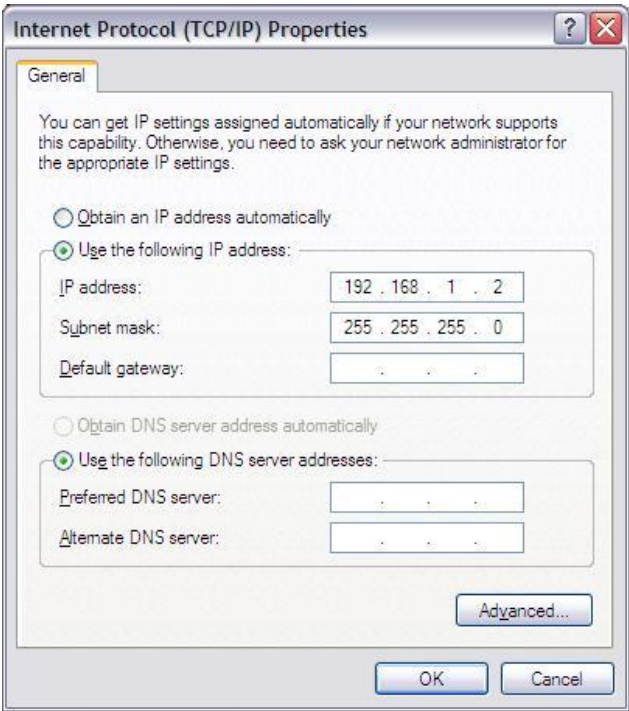


Chapter 4 Configuration

Connect the SGT-LD-5-23 to a Local Computer

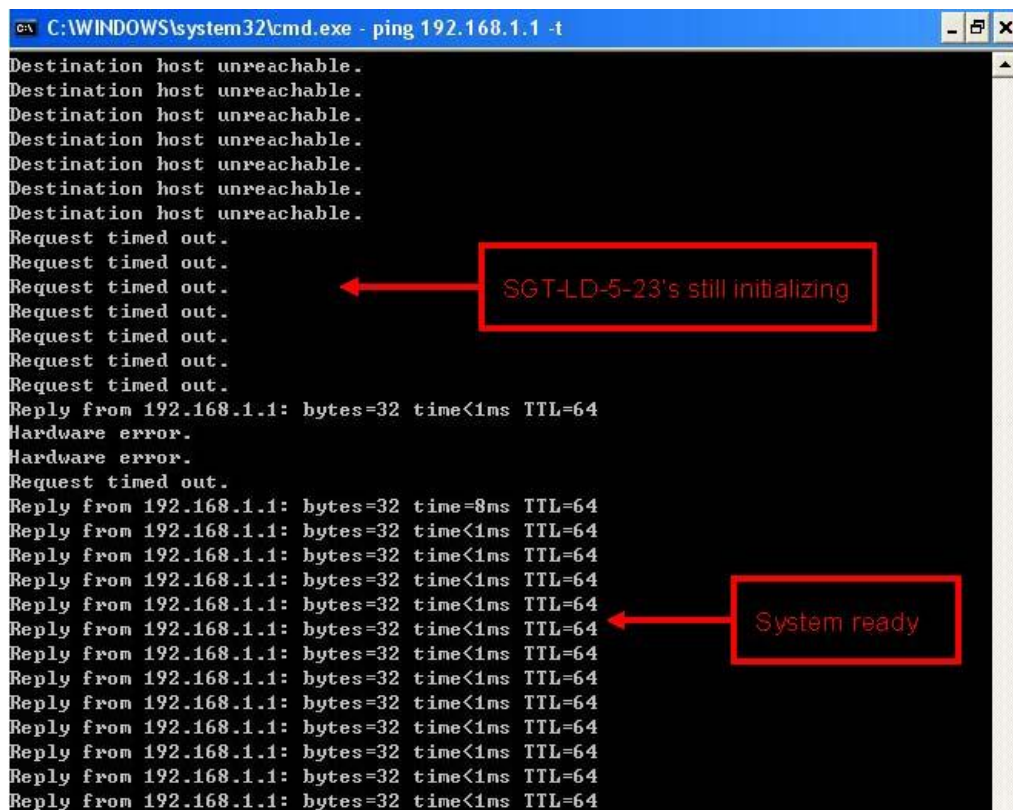
If you are configuring the SGT-LD-5-23 locally (without connecting its power injector to a wired LAN), connect a PC to the power injector's Ethernet port using a Category 5 Ethernet cable.

1. Assign a static IP address to your PC, which is in the same network segment as the SGT-LD-5-23. As the default IP address of this unit is 192.168.1.1, you may choose from 192.168.1.2 to 192.168.1.254.



2. Test the link status between your PC and the SGT-LD-5-23. Start a command prompt and execute a continuous ping command "ping 192.168.1.1 -t". If pinging to the wireless bridge is successful (as shown below), open an Internet browser and enter the bridge's IP address in the address bar and press Enter.

```
C:\WINDOWS\system32\cmd.exe - ping 192.168.1.1 -t
Destination host unreachable.
Destination host unreachable.
Destination host unreachable.
Destination host unreachable.
Destination host unreachable.
Destination host unreachable.
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Hardware error.
Hardware error.
Request timed out.
Reply from 192.168.1.1: bytes=32 time=8ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
```



Note:

Considering convenient configuration, it is recommended to configure local and remote SGT-LD-5-23 respectively on two computers. TTL time may vary depending on the operating system.

How to Establish Wireless Bridge Mode

The SGT-LD-5-23 supports four operating modes, which are Base Station, CPE, Peer-to-Peer (CSMA) and Peer-to-Peer (TDMA). Normally, Wireless Bridge is the standard mode on this unit. Here, we will illustrate how to establish wireless bridge connectivity with the SGT-LD-5-23.

Name

Password

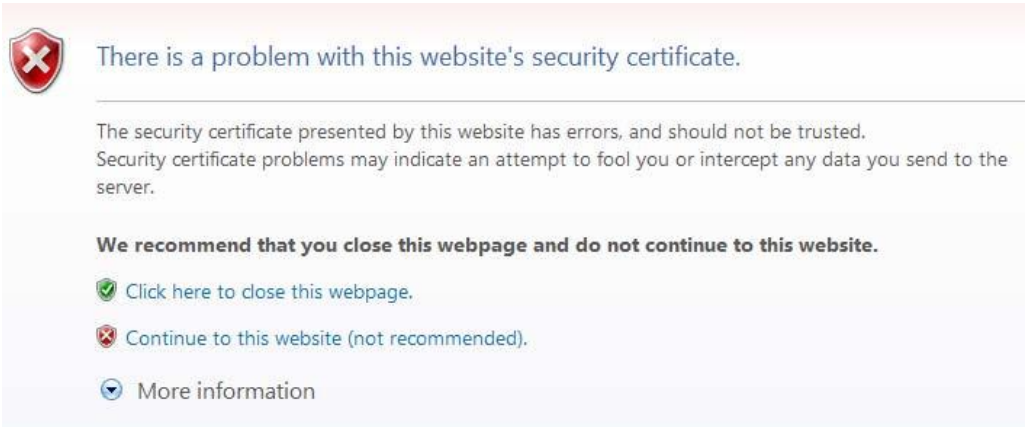
Login now

Reset

Enter the user name (admin) and password (password) to login and make configuration adjustments.

Note:

Due to the browser's security trusted site allocation, 192.168.1.1 might not



able to be opened. You may then choose to continue to the web interface of the unit.

Open **“Basic Setup”** in **“System”**, set the IP address of two SGT-LD-5-23's to be in the

same network segment. e.g. local SGT-LD-5-23 as 192.168.1.1 and remote SGT-LD-5-23 as 192.168.1.2 and set the IP Subnet Mask on both as 255.255.255.0.

The screenshot shows the 'Basic Setup' page of a network device's configuration interface. The top navigation bar includes 'System', 'Wireless', 'Status', and 'Management'. On the left, a sidebar contains 'About', 'Basic' (with a double arrow), and 'RADIUS Settings'. The main content area is titled 'Basic Setup' and contains the following fields:

- Wireless Device Name:
- Country / Region:
- Ethernet Data Rate:
- Spanning Tree Protocol (STP): ☒ Enable ☐ Disable
- STP Forward Delay: ☒ Turbo (default 1 sec) ☐ Normal sec (standard 4-30 sec)
- IP Settings: ☒ Manual ☐ DHCP Client
- IP Address:
- IP Subnet Mask:
- Default Gateway:
- Primary DNS Server:
- Secondary DNS Server:
- Time:

Warning:

Each IP address must be unique within a LAN, otherwise IP collisions may occur.

Open “**Radio**” in “**Wireless**” and you will find the default operating mode is Peer-to-Peer (CSMA). Select to use the Peer-to-Peer (CSMA) operating mode and keep the Channel/Frequency and Bandwidth on both SGT-LD-5-23’s identical. Click “**Apply**” to save settings.

SystemWirelessStatusManagement

Radio >>

Peer-to-Peer SetupSecurityAccess ControlLink Test

Radio Settings

Operating ModePeer-to-Peer(CSMA)Site Survey

Wireless Mode802.11a

Channel / Frequency149 / 5.745GHz

Transmit Rate24 Mbps

Output Power100%

Band Width20MHz

WMM Mode☐ Enable☒ Disable

Super Mode☐ Fast Frame☐ Burst☐ Compression

Advanced Parameters

RTS Threshold (0-2346)2346

Fragmentation Length (256-2346)2346

Beacon Interval(20-1000)100ms

Distance in Meters (0-100000)10000m

ApplyCancel

Login to the Web-based interface of the remote SGT-LD-5-23, open “**About**” in “**System**” and record its wireless MAC address.

Login to the Web-based interface of the local SGT-LD-5-23 and open “**Peer-to-Peer Setup**” in “**Wireless**”; input the WLAN MAC address of the remote one into the “**Remote MAC Address 1**” field and click “**Apply**”;

Warning:

The screenshot shows the 'Peer-to-Peer Links' configuration page. The top navigation bar includes 'System', 'Wireless', 'Status', and 'Management'. The left sidebar has 'Radio', 'Peer-to-Peer Setup', 'Security', 'Access Control', and 'Link Test'. The main content area has a message 'The setup has been applied.' and a table for MAC addresses. The table has columns for Local MAC Address and four Remote MAC Address fields. The Local MAC Address is 00:19:70:14:7E:24. The Remote MAC Address 1 is 00:19:70:14:7E:25. The other Remote MAC Address fields are empty. There is an 'Align Antenna' button and 'Apply' and 'Cancel' buttons at the bottom.

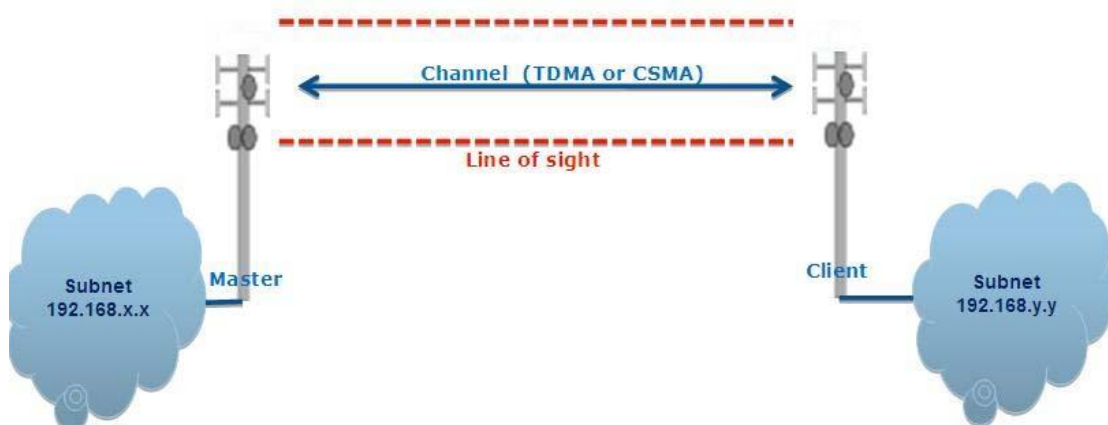
Local MAC Address	Remote MAC Address 1	Remote MAC Address 2	Remote MAC Address 3	Remote MAC Address 4
00:19:70:14:7E:24	00:19:70:14:7E:25			



The MAC address on the housing of SGT-LD-5-23 is the ETH MAC address; therefore it cannot be used in Peer-to-Peer links. The IP address of your PC should be in the same network segment as the one of the bridges.

Use ping to check if the link between the two SGT-LD-5-23 is connected.

To get a better wireless connectivity, antenna alignment is strongly recommended after both



SGT-LD-5-23's are installed a long distance apart. Login to the Web-based interface of the local SGT-LD-5-23 and open "**Peer-to-Peer Setup**" in "**Wireless**". Hit "**Align Antenna**" button - an antenna alignment tool will pop-up. Specify the Target RSSI and click "**Start**" to begin the antenna alignment.

Fix the local antenna and adjust the remote antenna elevation and horizontal direction. During the adjustment, observe “**Current RSSI**” in the local SGT-LD-5-23. Fix the remote antenna when it reaches your expected RSSI. Usually, a RSSI between -60 and -70dBm indicates rather good signal strength.

Adjust the local antenna after fixing the remote one. During the adjustment, observe

Antenna Alignment Tool

Local MAC: 00:60:b3:3c:ab:1a

Remote MAC: 00:60:b3:3c:12:34

Signal Strength:

Current RSSI (dBm):

0

Target RSSI (dBm) :

-65

Transmit Packets:

0

Receive Packets:

0

Start

“**Current RSSI**” in the remote SGT-LD-5-23. Fix the local antenna when it reaches your expected RSSI.

Congratulations! You have completed configuration of the SGT-LD-5-23’s and they can be put into operation. For more advanced configurations, please refer to the User manual.

Chapter 5 Troubleshooting

This chapter provides troubleshooting procedures for basic problems with the SGT-LD-5-23.

Q 1. What if my SGT-LD-5-23 fails to connect to the remote one?

Ethernet Link: Check the availability of power to the bridge by observing the LED status on the power injector - Green: The SGT-LD-5-23 is connecting to the backhaul network. -Off: The SGT-LD-5-23 is disconnected from the wired network; check if the power cord and Ethernet cables to the network and bridge are correctly connected.

Basic Configurations: Mismatched basic settings among bridges are the most common cause of connectivity failure. If the bridge does not associate with a remote bridge, check if options in each device are identical.

Security Settings: Remote bridges attempting to authenticate to your SGT-LD-5-23 must support the same security options configured in your bridge, such as WEP and WPA (2)-PSK. If your bridge fails to associate with others, check if the security settings are the same as your bridge settings.

Antenna Alignment: If the methods above are all checked to be correct, you can observe and verify antenna alignment with RSSI value.

Q 2. What if I would like to reset the unit to default settings?

You may restore factory default settings in “**Backup/Restore Settings**” from “**Management**”.

Q 3. What if I would like to backup and restore my configuration settings?

You may do the backup by generating a configuration file or retrieve the settings you have backed up previously in “**Backup/Restore Settings**” from “**Management**”.
